B.Thushar

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EXPERIENCE

Machine learning Engineer (Remote work) ***Rootally AI*** *May 2021 – Sept 2021 (Intern)*
Sept 2021 – Present (Full-time)

- Developed robust algorithms for an **AI therapist app**, specializing in detecting incorrect postures and repetitions using pose, hand, and face detection models.
- Implemented range of motion checks and advanced features like **speed tracking, hand sign detection, eye tracking**, and **user activity detection** using phone sensors (accelerometer and Gyroscope). Employed sophisticated post-processing filters (**Kalman**, **smoothing**, and **z-score**) for optimized tracking results.
- **Created a library of 250+ exercise algorithms** for pain management, fitness, stroke recovery, and more. **Developed assessments** for fitness, yoga, and flexibility, and designed algorithms for **posture** and **gait analysis** to evaluate user posture from front and side views and assess gait, providing precise posture and gait scores. Collaborated with cross - functional teams to implement and update exercises on **Android** and **iOS platforms**.
- Conducted extensive **data analysis** in **Python** on user-session data, extracting valuable insights to drive continuous app improvement, enhancing user experience and informed decision-making.
- Trained image processing algorithms to classify tongue movements using **OpenCV** for facial exercises. Implemented a robust face orientation detection method, utilizing **Euler Angles** and geometric principles.
- Designed a real-time sequence matching algorithm using **Dynamic Time Warping** and **RMSE** values to compare trainers' movements, providing live **similarity scores** based on user actions.
- Conducted extensive experimentation with various 3D body models such as **SPIN**, **SHAPY**, **Expose**, and **STRAP** to improve accuracy and performance in body composition analysis. Following this rigorous testing**,** implemented the **Expose** model with the **SMPL-X framework** for 3D body generation, enabling precise extraction of key body measurements for estimating body fat content and calculating health scores.

TECHNICAL SKILLS

Coursework: Machine Learning, Data Science, EDA, Data Structures and Algorithms, OOPS Concepts, Deep Learning, Data Visualization, NLP, Image Processing.

Languages: Python, Kotlin, R,SQL.

Developer Tools: VS Code, Jupyter, Google Colab, Anaconda, Py charm, Android Studio, Firebase, Xcode

Technologies/Frameworks: Pandas, Numpy, Tensorflow, Keras, OpenCV, Sklearn, Seaborn, Matplotlib, Git, GitHub,, Tableau, Streamlit.

Other activities: Active participation in hackathon [Kaggle] [Univ.ai], data science blogger [Medium], hacker rank coder **[**hackerrank].

PROJECTS

1. **PG project: Stock price prediction using machine learning algorithms.** [link] *[2022-22]*
   - Conducted exploratory data analytics and feature extraction for time series data.
   - Performed advanced feature engineering by extracting 38 new features from closing price and date feature.
   - Trained several machine learning models, including linear regression, random forest, XGBoost, and LSTM, and selected the LSTM model as the most suitable for time series data.
   - Deployed four distinct stock models into a web application hosted on **Streamlit Cloud**.

2. **M Tech project: Image processing on crops using Convolutional neural network. [**link] *[2020-21]*
    - Developed CNN based classification model to predict leaf disease in potato crop and deployed the model in mobile phones.
    - Trained object detection models namely **YOLO**, **SSD** and **Faster R CNN** to detect and classify diseased regions in plants.
    - Compiled a program to quantify the disease severity in plants using **OpenCV** image processing technique by performing color segmentation and morphological operations on image.

3. **Machine learning and Deep learning personal projects**
    - Big Mart Sales Prediction using Machine Learning Regression Techniques in Python.
    - Loan Prediction using Machine Learning Classification Techniques in Python and R.
    - Credit Card Fraud detection using supervised and unsupervised algorithms.
    - Machine learning and IOT based temperature monitoring system using z-score analysis for outlier detection.
    - Developed a chatbot using **ANN** for natural language processing.
    - Developed sentiment analysis system, document retrieval system and recommendation system using Turi create and S frames in Google Colab.
    - Built hands-on projects in artificial intelligence like face and emotion recognition, smart attendance system, diabetic prediction, road sign detection, object tracking, drowsiness detection, fake news detection, OCR, speech and emotion recognition etc.

EDUCATION DETAILS

Examination	University/Institute	Year	CGPA/%
PG Diploma in AI and ML	University of Hyderabad	2021 - 2022	8.8
M.Tech	IIT Kharagpur	2019 - 2021	8.9
B.Tech	College of Agricultural Engineering, Gkvk Bangalore	2015 - 2019	8.23
Intermediate/+2	Ambika Padavi Poorva Vidyalaya, Puttur	2013 -2015	90.16
Matriculation	St.Mary's High school, Uppinangady	2013	91.36

SCHOLASTIC ACHIEVEMENT

- Secured AIR-59 in GATE 2019

TRAINING AND CERTIFICATIONS

- IOT and Machine Learning [link] — Bolt — *Mar - Apr 2020*
- Machine Learning Foundations: A Case Study Approach [link] — Coursera — *Oct 2020*
- Convolutional Neural Networks [link] — Coursera — *Nov 2020*
- Machine learning and Deep learning in Python and R [link] — Udemy — *Dec 2020*
- Statistics for Data science [link] — Great Learning — *Jan 2021*
- Artificial intelligence in Python [link] — Pantech Solutions — *Feb - Mar 2021*
- Python for Data Science [link] — Univ.ai — *Sep - Oct 2021*

POSITION OF RESPONSIBILITIES

- Successfully supervised and mentored interns by providing guidance, instruction, and support throughout their internship tenure. ***(Rootally AI).***
- Engaged directly with clients to understand their needs, challenges, and requirements related to the project ***(Rootally AI).***
- Participated in regular online client meetings for requirement gathering, issue resolution, and discussion on testing reviews, ensuring clear project progress updates and alignment. ***(Rootally AI).***
- NSS volunteer during the B Tech program and attended NSS camp for 8 days*(2017)*.
- Attended RAWEP camp for 1 month in Raja kallahalli village, Kolar, Karnataka *(2018).*
- Organized several awareness programs and Campaigns in the village*(2017)*